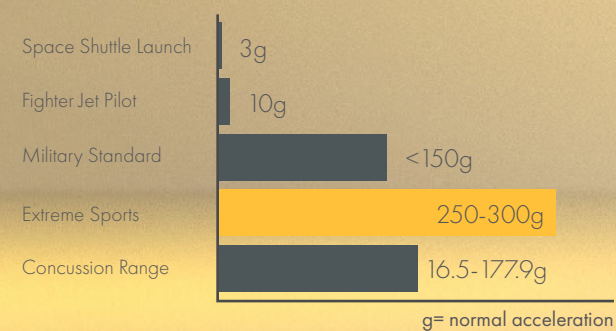


# Snow Sports Research

**RQ1: What are key issues snow sports players face. How could the experience be improved?**

According to NSAA, **collisions** with other skiers, snowboarders and stationary objects are the **most common** report catastrophic injuries. **High speed** may cause a **serious blunt impact up to 250-300g**(acceleration due to gravity)

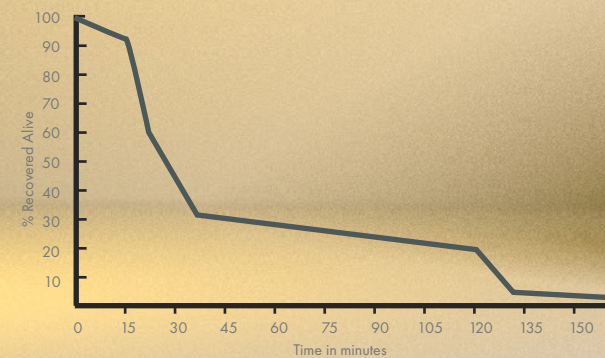
## BLUNT IMPACT FORCES VS ACTIVITIES



**RQ2: What are technologies that exist and allow to be integrated into the device?**

Natural hazard such as **avalanche** can cover large area and the search can be difficult. 85.7% survey respondents do not have an avalanche reflector. This can result in a **long time** search, and statistics show survival rate can greatly decrease with every minutes spent.

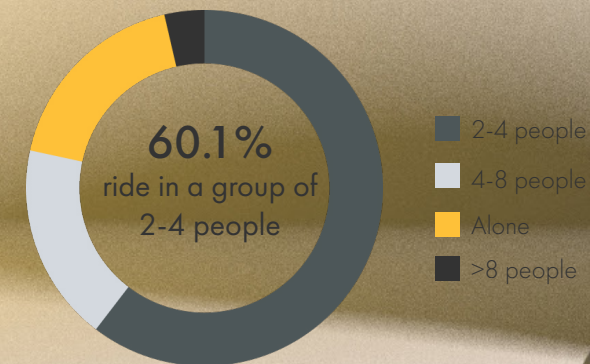
## AVALANCHE SURVIVAL VS. BURIAL TIME EUROPEAN DATA (N=422)



**RQ3: How can a design of snow sport drop in speaker meet the users needs and provide them safe and enjoyable experience on the slope?**

Lastly, people often ride in a group. Each members have different level of expertise in snowboard/ski. With the complicated trail map, a group can easily **get lost** at the intersection. This can result in time-wasting and irritation.

## SNOW SPORT GROUP SIZE



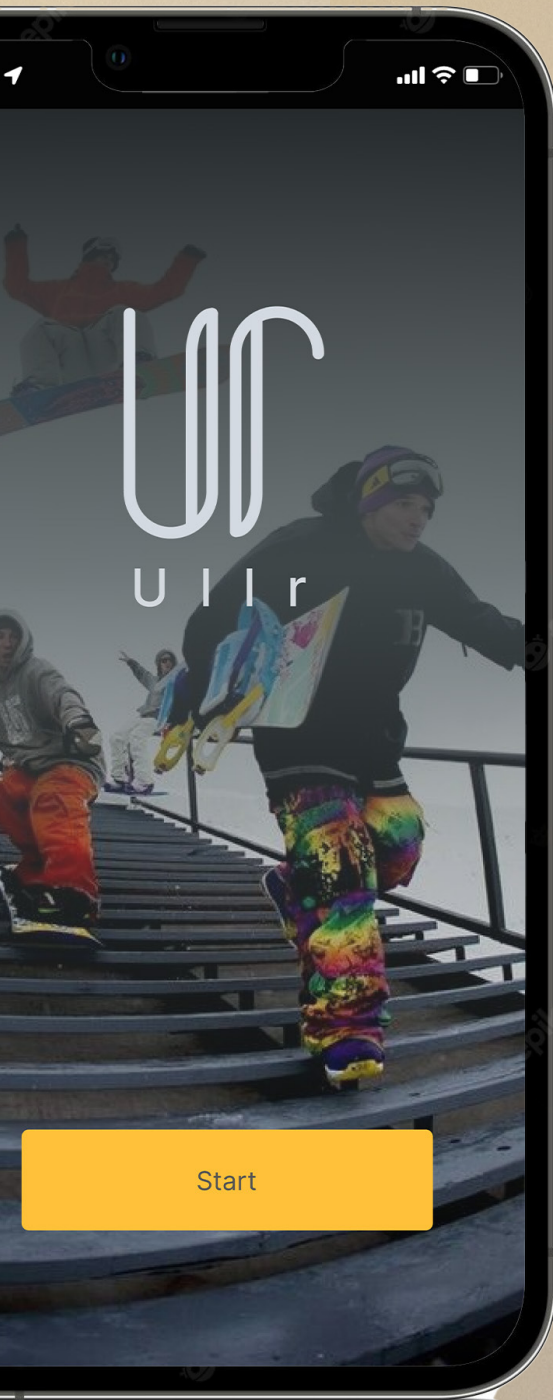


The name Ullr (pronounced Ool-er) comes from Norse god that associate with snow sports.

The propose solution consist of 3 parts: phone application, drop-in Bluetooth speakers and a wireless controller. I conducted several usability tests and researched on existing universal designs to achieve three main focuses:

- Accessible: Product should be accessible during ride on the slope
- Safety-focused: Safety is still the main priority when it comes to using the device
- Straightforward: The product gesture should be straightforward and easy to remember





## PHONE APPLICATION

### Device Settings

Users were first given tutorials once they registered as a new user. They can also change the default settings later in the device tab. The device tab is designed to be visible and customizable. ? icon on the top right provides explanation on the features.

### Functional Features

#### 🛡️ Safety

Safety features include rear traffic detection, emergency signal, and embedded RECCO. Both rear traffic detection and emergency signal can be personalized by users.

#### 🎵 Music List

Users can import their favorite song list from Spotify and Apple Music. Once they use their phone to choose music, they may pause, skip songs and increase and decrease volume with the remote controller.

#### 📍 Location Tracking

Users may track their group members by viewing the map under the Map tab. The glove-friendly design allows them to long press on the remote control for communication.

#### 🏃 Fitness Data

Fitness information can be found under the hamburger menu. The fitness data selection is based on the 28 user survey result. User may also choose to view the graph of consecutive changes by choosing the graph icon.

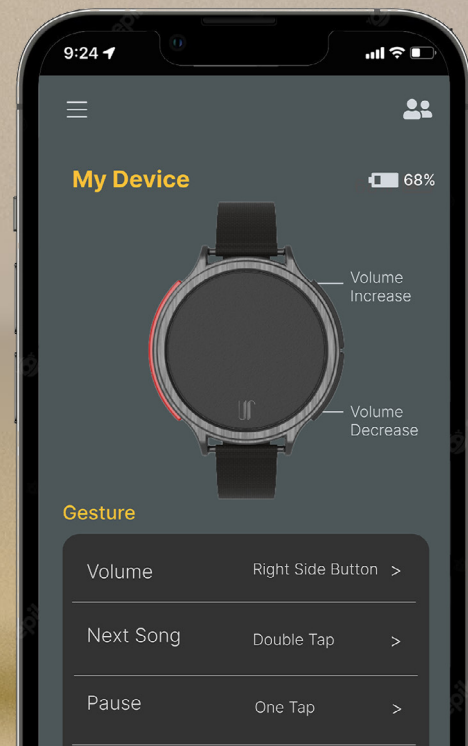
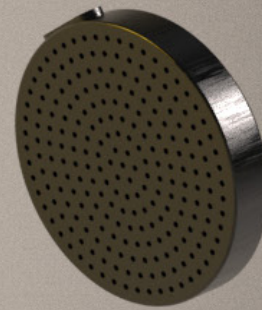
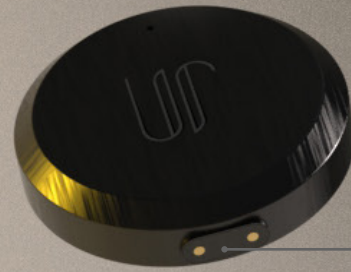


# Ullr

DROP-IN SPEAKER  
& WIRELESS CONTROLLER

## User Centered Design

In order to create an effortless design for the users to do essential tasks during skiing/snowboarding. While conducting the user interview, I looked into user behaviors such as when and how do they communicate with their teammates. Also what are their wearables and potential method of carrying a bluetooth remote control. I studied different digital products' gesture and PUI not limited to the sport gear to understand general public perception. I also 3D printed different versions of controller and speakers to explore the desirable size that is glove-friendly for snow sports. I concluded that 40mm & 45mm diameter will be the suitable size.



## Charging Location

Speaker charging port located at the bottom of the device; the remote controller charging port can be found in the back.

## RECCO

Safety is our first priority. RECCO is a rescue technology that includes both reflector and detector. It is used to quickly locate victims buried by an avalanche. The device is light and convenient. Also the implementation of RECCO could greatly increase the survival rates if users encounter avalanche.

## Customizable Buttons

Remote controller allows user to personalized their gestures to create a smoother user experience

